REPORT DOCUMENTATION PAGE	Form Approved OMB No. 0704-0188

1. AGENCY USE ONLY *(Leave blank)*	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	21.May.03	DISSERTATION

4. TITLE AND SUBTITLE
SEDATION ASSESSMENT TIME FOR A CHANGE

5. FUNDING NUMBERS

6. AUTHOR(S)
MAJ DE JONG MARLA J

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
UNIVERSITY OF KENTUCKY LEXINGTON

8. PERFORMING ORGANIZATION REPORT NUMBER
CI02-929

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)
THE DEPARTMENT OF THE AIR FORCE
AFIT/CIA, BLDG 125
2950 P STREET
WPAFB OH 45433

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION AVAILABILITY STATEMENT
Unlimited distribution
In Accordance With AFI 35-205/AFIT Sup 1

12b. DISTRIBUTION CODE

13. ABSTRACT *(Maximum 200 words)*

20030604 074

14. SUBJECT TERMS

15. NUMBER OF PAGES
9

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT

THE VIEWS EXPRESSED IN THIS ARTICLE ARE THOSE OF THE AUTHOR AND DO NOT REFLECT THE OFFICIAL POLICY OR POSITION OF THE UNITED STATES AIR FORCE, DEPARTMENT OF DEFENSE, OR THE U.S. GOVERNMENT

SESSION SUMMARY FORMAT

(Submit one copy only on Computer Diskette or via e-mail in WORD only)

Title of Presentation (limit to 50 characters): Sedation Assessment: Time for a Change!

Sponsorship if applicable: Abbott Laboratories, Inc, Hospital Products Division

Speaker(s) Name, NO CREDENTIALS: Marianne Chulay, Lorie Wild, Marla DeJong

Date(s), Time(s) if available: Tuesday, May 20, 2:15-3:00 and 4:00 to 5:15 pm

Content Description: Sedative medications are commonly prescribed to critically ill patients to manage a variety of physiologic and psychological conditions. Dosing of sedative agents are typically titrated to achieve an acceptable level of sedation based on frequent patient assessment. Despite a number of published sedation assessment scales, most lack adequate validity and reliatiblity testing and their clinical usefulness in critically ill patients is limited. This panel discussion will compare and contrast the most common sedation assessment scales,suggest components of an ideal sedation assessment scale, and discuss challenges to the design and testing of a sedation assessment scale for use in critically ill patients.

Learning Outcomes (provide 3)

"At the end of the session the participant will be able to:"

1. List common goals of sedation management.
2. Discuss limitations of the current sedation assessment scales for use in critically ill patients.
3. List several desired components of a sedation assessment scale for use in common clinical situations in critical care.

Summary of Key Points:

I. Introduction

II. Abbott Laboratories / AACN/ Saint Thomas Hospital Sedation Assessment Collaboration

III. Goals of Sedation Management

- A. Prevention of self harm
- B. Relief of anxiety and/or agitation
- C. Promotion of comfort
- D. Promotion of ventilator synchrony
- E. Creation of an amnesic state
- F. Promotion of sleep

G. Adjunct to neuromuscular blockade

IV. Limitations of Current Sedation Assessment Scales (see Tables 1 and 2)

A. Most evaluate agitation or consciousness only and do not address other goals for sedation management

B. Levels of scales overlap and combine more than one dimension for evaluation into each level

C. Most designed for use during or immediately following anesthesia

D. Newer sedative agents produce sedative states which are not easily assessed with current sedation scales

E. Limited testing in critically ill patients

F. Provide little to no guidance on drug administration

V. Requirements for New Sedation Assessment Scales

A. Facilitate identification of sedation goal(s)

B. Include subscales for each of the major goals for sedation management

C. Acknowledge need to adequately manage pain separate from sedation management

D. Use information technology resources (e.g., PDAs, computers) to simplify interpretation of subscale ratings

E. Easy for clinicians to use

VI. Challenges to Design of a New Sedation Assessment Scale

A. Identifying appropriate subscales for inclusion

B. Rigorous validity and reliability testing of the new scale

C. Testing in a variety of critically ill patient populations

D. Development of sedation management algorithyms

Bibliography/Webliography (limit to eight, listed in alphabetical order by author name):

DeJonge B, Cook D, Appere-De-Vecchi C, et al. Using and understanding sedation scoring systems: A systematic review. Intensive Care Medicine 2000; 26:275-285.

Fraser G, Riker R. Monitoring sedation, agitation, analgesia, and delirium in critically ill patients. Critical Care Clinics 2000;17(4):967-987.

Hansen-Flaschen J, Cowen J, Polomano RC. Beyond the Ramsey scale: Need for a validated measure of sedating drug efficacy in the intensive care unit. Critical Care Medicine

1994; 22:732-733.

Jacobi J, Fraser G, Coursin D et al. Clinical practice guidelines for the sustained use of sedatives and analgesics in the critically ill adult. Critical Care Medicine 2002; 30(1):119-141.

Lieberman J, Tremper K. Sedation: If you do not know where you are going, any road will get you there. Crit Care Med 1999;27:1395-1396.

Luer JM. Sedation and chemical relaxation in critical pulmonary illness: Suggestions for patient assessment and drug monitoring. AACN Clinical Issues 1995; 6(2):333-343.

Weinert CR, Chlan L, Gross C. Sedating critically ill patients: Factors affecting nurses' delivery of sedative therapy. American Journal of Critical Care 2001; 10(3):156-165.

Speaker Contact Information: chulay@aol.com; mdejong@aol.com; lwild@u.washington.edu

Is it time for a change?

- Limitations of current sedation assessment scales
- Complexity of therapeutic sedation
  - conditions/symptoms managed by sedation
  - sedation as a treatment
- New sedation agents produce different sedation states not captured on current scales
- Demand for evidence-based tools to guide clinical practice

Is it time for a change?

- Call by experts for better sedation assessment scales
  - Emphasize the need for scales that evaluate more than one domain of sedation
  - Need rigorously developed and tested scales to support sedation cost-effectiveness studies

Wittbrodt E. The ideal sedation assessment tool: An elusive instrument. Critical Care Medicine 1999;27:1384-85.

DeJong B et al. Using and understanding sedation scoring systems: A systematic review. Intensive Care Medicine 2000;26:275-85.

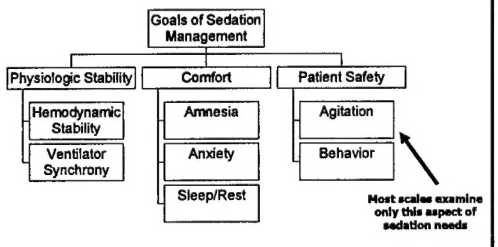
Hansen-Flaschen J et al. Beyond the Ramsay scale: Need for a validated measure of sedating drug efficacy in the intensive care unit. Critical Care Medicine 1994;22:732-33.

Need for tailoring in a "one-size-fits-all" wardrobe

What should it look like?

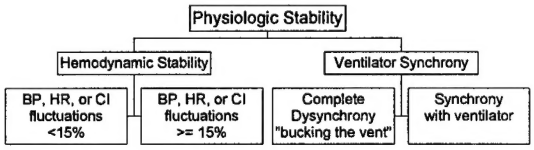
- Incorporate characteristics and goals of therapeutic sedation
  - solid "anchors" that cover the scope of the characteristics or therapeutic endpoints to guide use
- Reliable: consistent results when used over time and by different practitioners
- Valid: measures what it is supposed to measure
- Detect changes over time
  - within and across patients
- Feasible for use in clinical practice

Goals of Sedation Management



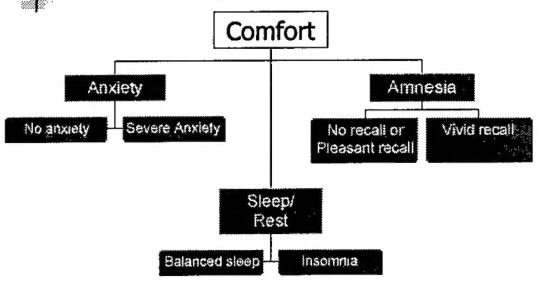
Goals & Anchors

Physiologic Stability



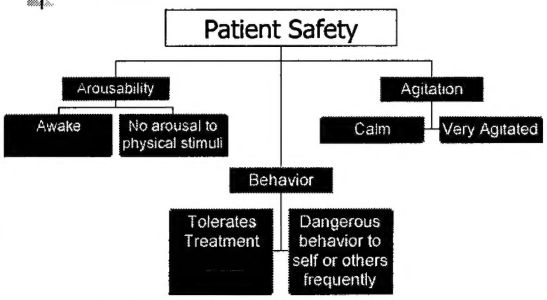
Goals & Anchors

Comfort



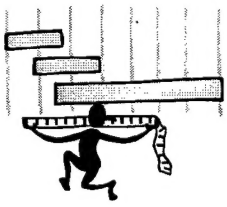
Goals & Anchors

Patient Safety

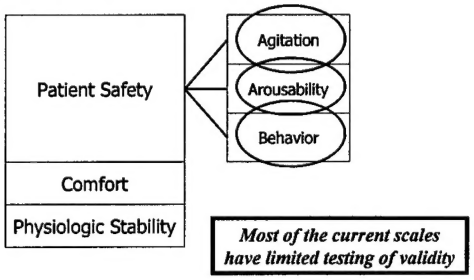


Validity

- Does the scale measure what it is supposed to measure?
  - Appears to be by looking at it
  - Relates to other measurements of the same thing
  - Differentiates from other measures of similar things



Validity of Sedation Scales



Most of the current scales have limited testing of validity

Reliability

- Do you get the same score when...
  - different nurses independently assess the same patient?

  - assessing a patients at different times when his condition is the same?

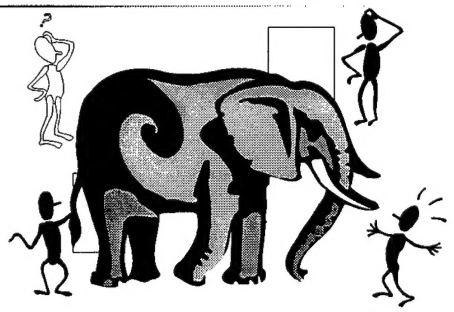
Feasibility

- The assessment scale must be easy to use in the clinical setting
  - Short as possible
  - Understandable
  - Offer good descriptions to be self-explanatory

Desirable Characteristics of a Sedation Scale

- Use of an "index" or composite scale
  - Incorporates core measures of therapeutic sedation
    - Physiologic Stability, Comfort, Patient Safety
  - Able to measure unique situations
    - e.g., assess and manage pain separately from sedation

Many parts comprise the whole



Desirable Characteristics

- Use information technology resources to simplify interpretation of subscale ratings

Example of a New Sedation Scale with Multiple Domains

STEPS IN ASSESSING SEDATION

◆ **Step 1: Assess patient's level of pain**

Numeric Pain Scale:

☐0 ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10
(no pain) (terrible pain)

Facial Expression Pain Scale:

☐ Normal ☐ Frown ☐ Wince ☐ Biting Lips ☐ Grimace ☐ Teeth Clenched ☐ Open Mouth

If pain > 3 on a scale of 1-10 or if facial expression indicates pain (frowning, wincing, tight facial expression, grimacing), increase pain medication and reassess pain in 10 to 20 minutes.

◆ **Step 2: Select / verify sedation goals scale below.**

◆ **Step 3: Assess sedation level using the scale below.**

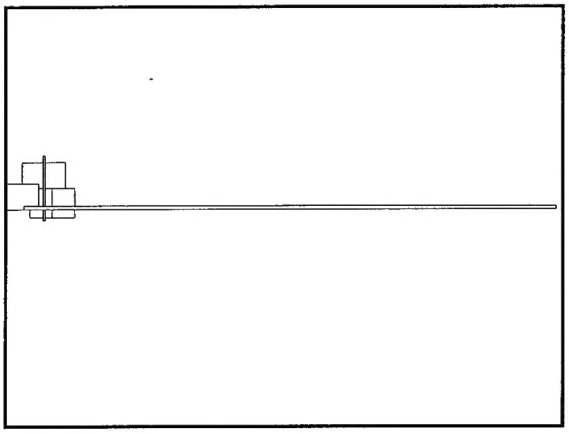
◆ **Step 4: Adjust sedation medication (increase, decrease, maintain) to keep sedation score in the desired range for sedation goals.**

Example of a New Sedation Scale with Multiple Domains

Sedation Goals								
Control of Behavior			Comfort			Physiologic Stability		
Control Agitation O Yes	Patient Safety O Yes	Consciousness O Yes	Relief of Anxiety O Yes	Promote Sleep / Rest O Yes	Amnesia O Yes	Ventilator Synchrony O Yes	Hemodynamic Stability O Yes	ICP Stability O Yes
Calm / tolerates treatment	Tolerates treatment	Awake	Calm / no anxiety	Balanced sleep / rest	No recall of painful / disturbing events	Synchrony with ventilator	Hemodynamically stable	ICP stable
Restless	Modifies behavior when requested	Arouses easily to verbal stimuli	Slight anxiety		Some recall of painful / disturbing events	Synchrony with ventilator most of the time		Transient periods of ↑ICP
Agitated	Behavior dangerous to self or others on occasion	Arouses to strong verbal or light physical stimuli	Moderate anxiety		Vivid recall of painful / disturbing events	Dysynchrony with ventilator	Hemodynamic instability (BP, P, or CI fluctuations < 15%	Sustained periods of ↑ICP
Very agitated	Dangerous behavior to self or others frequently	Arouses only to strong physical stimuli	Severe anxiety	Insomnia / unable to sleep or rest		"Bucking" the ventilator	Severe hemodynamic instability (BP, P, or CI fluctuations ? 15%	
		No arousal to strong physical stimuli						

Challenges to Design

- Identify and define appropriate subscales for inclusion
- Rigorous testing for validity and reliability
- Testing in a wide variety of critically ill patient populations
- Easy to use clinically
- Guide sedation management (algorithms)



Goals of Sedation Management

- Prevent harm to self
- Relieve anxiety and/or agitation
- Promote comfort
- Promote ventilator synchrony
- Create an amnesic state
- Promote sleep
- Support neuromuscular blockade

Goals of Sedation Management

- Comfort – includes relief of anxiety, pain, respiratory distress / dyspnea
- Amnesia
- Patient Safety

Weinert et al. Sedating critically ill patients: Factors affecting nurses' delivery of sedative therapy. AJCC 2001;10:156-165.

Sedation vs. Pain Management

- Sedation management: relief of anxiety and agitation; induction of a calm state; provide amnesia
- Pain management: relief of unpleasant sensory and emotional experiences

Park, et al. Balancing sedation and analgesia in the critically ill. Critical Care Clinics 2001;17(4):1015-1027.
Jacobi et al. Clinical practice guidelines for the sustained use of sedatives and analgesics in the critically ill adult. Critical Care Medicine 2002;30:119-141.

Pain Under Treated in Critically Ill Patients

"Current ICU practice uses too little analgesia and too much sedation. If we did a better job of pain management, our need to use benzodiazepams and alpha agonist agents would be less. Sedatives should be used as an adjunct to analgesia, not to replace it. If pain is addressed adequately, the need for sedation is very, very, small."

Meg Campbell, RN, MSN at the Abbott / AACN / Saint Thomas Sedation Expert Panel Meeting in Nashville, TN, August, 2002.

"Best" Sedation Assessment Scales

- Ramsay Scale
- Sedation Agitation Scale
- Motor Activity Assessment Scale

Some validity and reliability testing in these scales – more testing needed

DeJong et al. Using and understanding sedation scoring systems: a systematic review. Intensive Care Medicine 200;26:275-285.

Ramsay Scale

Score	Level of Agitation
1	Patient anxious or agitated or both
2	Patient cooperative, oriented and tranquil
3	Patient responds to commands only
4	Patient asleep with a brisk response to a light glabellar tap
5	Patient asleep with a sluggish response to a light glabellar tap
6	No response

Sedation – Agitation Scale (SAS)C

Score	Level of Agitation
1	Unarousable – minimal or no response to noxious stimuli
2	Very sedated – arouses to physical stimuli but does not communicate or follow commands
3	Sedated – difficult to arouse, awakens to verbal stimuli or gentle shaking but drifts off again, follows simple commands.
4	Calm and cooperative – calm, awakens easily, follows commands
5	Agitated – anxious or mildly agitated, attempting to sit up, calms to verbal instructions)
6	Very agitated – does not calm, despite verbal reminding of limits, requires physical restraints, biting ET tube
7	Dangerous agitation – pulling at ET tube, trying to remove catheter, climbing over bed rail, striking at staff, thrashing side to side

Motor Activity Assessment Scale (MAAS)

Score	Level of Agitation
1	Unresponsive – does not move with noxious stimuli
2	Responsive only to noxious stimuli – opens eyes or raises eye brows or turns head toward stimulus
3	Response to touch or name – opens eyes or raises eye brows or turns head toward stimulus or moves limb when touches or name is spoken loudly
4	Calm and cooperative – no external stimulus is required to elicit movement purposefully and follow commands
5	Restless and cooperative – no external stimulus is required to elicit meovement and patient is picking at sheets or tubes or uncovering self and follows commands
6	Agitated – no external stimulus is required to eleict movement and attempting to sit up or moves limbs out of bed and does not consistently follow commands
7	Dangerously agitated, uncooperative – no external stimulus required to elicit movement and patient is pulling at tubes or catheters or thrashing side to side or sktriking at staff or trying to climb out of bed and does not calm down when asked

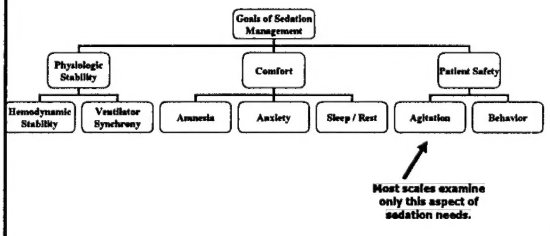
Richmond Agitation / Sedation Scale (RAAS)

Score	Level of Agitation	Score	Level of Agitation
+4	Combative – overly combative or violent; immediate danger to staff	-1	Drowsy – not fully alert, but has sustained (more than 10 sec) awakening with eye contact to voice
+3	Very agitated – pulls on or removes tube(s) or catheter(s) or has aggressive behavior toward staff	-2	Light sedation – briefly (less than 10 sed) awakening with eye contact to voice
+2	Agitated – frequent nonpurposeful movement or patient-ventilator dysynchrony	-3	Moderate sedation - any movement (but no eye contact to voice)
+1	Restless – anxious or apprehensive but movements not aggressive or vigorous	-4	Deep sedation - no response to voice, but any movement to physical stimulation
0	Alert and calm	-5	Unarousable – no response to voice or physical stimulation

Limitations of Sedation Assessment Scales

- **Only evaluate agitation or consciousness**
- **Overlap between levels of the scale**
- **Mainly designed for evaluation in the perioperative period – not for critical care use**
- **Do not include sedation level descriptions which coincide with sedation states of newer sedative agents**

Goals of Sedation Management



Limitations of Sedation Assessment Scales

- **Only evaluate agitation or consciousness**
- **Overlap within a single scale**
- **Mainly designed for evaluation in the perioperative period – not for critical care use**
- **Fail to include sedation level descriptions which coincide with sedation states of newer sedative agents**

Video of Sedated Patient

Limitations of Sedation Assessment Scales

- Poorly tested in critically ill patients
- Fail to guide drug administration
- Not individualized to specific patient goals

Pain

- Pain management is first priority of sedation management
- Assess pain in conjunction with sedation

Future Challenges

- Foster communication with the sedated pt
- Design an objective sedation scale
- Differentiate b/t sedation and analgesia
- Promote multidisciplinary commitment to sedation assessment and management
- Research and adopt a national standard for sedation management